

CONTAMINATED LAND

October 2006 Issue 3

BULLETIN

POLICY

Soil strategy back on track

The European Commission has relaunched its proposed Soil Thematic Strategy, which has been much delayed - and was thought by many to have been dropped altogether - following opposition from member states including the UK.

The Commission said that soil degradation is accelerating across the EU, with negative effects on human health, ecosystems, economic prosperity and quality of life. Environment commissioner Stavros Dimas said: "Soil is a prime example of the need to think global and act local. That is why we propose a common framework at EU level which will set a level playing field and aim at the same level of protection of soils throughout the EU, while leaving member states room to take into account national situations in their implementation. We want to ensure that citizens today and in the future benefit from soils that are able to perform a wide range of different functions, providing us with all the services that we need."

Approximately 3.5 million sites within the EU could be contaminated and about 45% of European soils have low organic matter content, principally in southern Europe.

The framework directive will require member states to "adopt a systematic approach to identifying and combating soil degradation, tackling precautionary measures and integrating soils protection into other policies". However, the Commission said the new rules will allow for flexibility.

Member States will have to prevent land contamination, establish an inventory of contaminated sites on their territory and draw up national remediation strategies. When a site is being sold and a potentially contaminating activity has taken or is taking

place, a soil status report will have to be provided by the seller or the buyer to the administration and the other party in the transaction. Finally, Member States are required to "limit or mitigate the effects of sealing", for example by rehabilitating brownfield sites.

Member states will have to identify contaminated sites within five years of the directive coming into force. Within seven years a national remediation strategy will have to be in place to tackle contaminated land, and European targets will have to be met. A fund for remediating orphan sites will also have to be set up within seven years.

The Commission also said the Integrated Pollution Prevention and Control Directive would be revised to strengthen its soil protection and contamination prevention aspects.

Professor Mark Kibblewhite, head of Cranfield University's department of natural resources and chair of the European Soil Bureau Network, said: "Soil resources underpin European society, by supporting wildlife conservation, clean water and food production. They are being threatened, especially by new construction. The new strategy is risk-based and provides an excellent framework for innovation in soil management

and technology."

Dick Thompson, director of Cranfield's National Soil Resources Institute, said: "England and Wales are in a strong position to benefit from the new European strategy, which is the most significant policy development in soil protection so far this decade. Much has been achieved already within Defra's first soil action plan for England and the emergence of the European strategy will provide new impetus to keep the UK at the cutting-edge in Europe."

However, the European Environmental Bureau claimed the strategy is "too weak to power the changes needed to reverse the continuing degradation of Europe's soil", describing it as a "very timid first step".

Secretary general John Hontelez said: "Sadly, at EU level, up to now soil has only been protected in an extremely patchy manner by means of other laws. An EU soil protection law is long overdue and, once it is finally adopted, ought to elicit the necessary steps to tackle the most pressing soil threats, such as carbon loss and contamination."

● *Full details of the strategy are available at <http://ec.europa.eu/environment/soil/index.htm>*



IN BRIEF

CLEA update

The Environment Agency has formally withdrawn CLEA 2002, it has been announced. Launched in 2002 with the original CLR technical package, the software is no longer compliant with current technical guidance and lacks the versatility of the more recent CLEA UK beta version 1.0.

Land contamination policy manager Sheena Engineer told *CLB*: "Following feedback from the land contamination community, we recognise that some assessors are producing reports using CLEA 2002. Since its original release, we have undertaken considerable work and published briefing notes one to four

"CLEA 2002 does not reflect these updates. To avoid potential for delays where risk assessments might need to be revisited to reflect the current approaches, we are now formally withdrawing CLEA 2002."

Engineer emphasised that "CLEA is an aid to decision-making and does not replace the need for sound professional judgement in risk assessment".

The Environment Agency will consider the formal status of the CLEA UK beta software following the review of Soil Guideline Values currently being undertaken by Defra and a new version is planned which it is hoped will address weaknesses in the old software.

● The update can be found on the Environment Agency's CLEA web pages at: www.environment-agency.gov.uk/subjects/land_quality/113813/672771/678775/?version=1&lang=_e.

● See page six for an update progress towards new SGVs and an updated CLEA.

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IN BRIEF

York to investigate

City of York Council should get the go-ahead to carry out detailed investigations into three former landfill sites when members meet to approve proposals this month.

Initial investigations in 2005 focused on three areas of land that were historically used for domestic or commercial waste tipping, with landfill gas emissions found at all three sites.

Members of the council's neighbourhood services advisory panel will be asked to accept a Defra grant of £33,150 to carry out in-depth investigations into the three sites. If agreed, the grant will be used to fund monitoring and risk assessment of the landfill gas concentrations over a 12-month period.

"We do not have any immediate concerns about the health of people using the sites," the council said.

Video briefing

The European Commission has posted an eight-minute video news briefing on the proposed Soil Thematic Strategy on the internet.

● Visit www.tvlink.org/viewer.cfm?vidID=180&strID=102.

Water guidance

CIRIA has published *Control of water pollution from linear construction projects*, which provides guidance on how to plan and manage water pollution from linear projects.

The guidance outlines the characteristics of linear construction projects; provides an understanding of water pollution; and covers the project lifecycle from planning, early environmental assessments and design considerations for the construction phase, through to commissioning.

The focus is on the prevention of contamination of watercourses, improving the environmental performance of linear construction projects. However, the principles can be applied to most construction sites.

● www.ciriabooks.com or call 020 7549 3300.

TESTING

Golf course testing complete

Halton Borough Council has completed the last scheduled inspections at the St Michael's golf course, closed since October 2004 following the discovery of severe contamination.

The latest round of inspections focused on shallow groundwater movement on the southern half of the golf course and was funded through a £116,000 grant allocation from Defra's capital projects programme.

Councillor Phil Harris told *CLB*: "The last scheduled phase of inspection actions was completed last week, with the sampling of groundwater wells installed over the summer and a further round of surface water sampling. The consultants

conducting the work are expected to report on the most recent investigations and issue the final recommendations for the significant pollutant linkages in November. Shortly after that, following consultation with the Environment Agency, we will issue a determination."

Harris said that the additional site investigation work has been necessary to characterise the behaviour and impacts of the leachate generated by the site on a potential minor aquifer. "Determining the complex geochemistry and interplay between the leachate and the local watercourse, coupled with seasonal flow variations, has been difficult," he explained. If the site proves to be causing

damage to the river, a special site designation will be made.

The principal contaminants on the site are associated with LeBlanc alkali process wastes and metal processing and refining wastes. Harris said: "Arsenic, zinc, copper, lead, pH, sulphide and sulphate have all been identified as potentially significant in both the site leachate and some surface soils."

Environment Agency environment manager Gwen Scott described the golf course as one of the Agency's highest priority sites in the North West and said the Agency would continue working closely with the council to get the site remediated and re-opened as soon as possible.

POLICY

Accreditation scheme moves forward

The proposed remediation industry accreditation scheme will be discussed at a meeting of CL:AIRE's board on 26 October. CL:AIRE has hosted two preliminary fact-finding meetings to discuss the proposed creation of an accreditation scheme for remediation contractors.

At the meetings it was proposed that the scheme should initially concentrate on

establishing contractors' professional credentials, with the objective of assuring clients and those commissioning remediation work on their behalf that the contractor is reputable, experienced, has competent staff capable of working safely and of completing a project to an agreed code of practice.

CL:AIRE project director Nicola Harries told *CLB* that

notes from the meetings have been issued to attendees, and that a trustee is preparing a paper to go to the board for further discussion. "More information should be available in mid-November," she said. "We're taking it very slowly because of the huge implications of the scheme for the sector, and because we want to make sure we take everyone involved along with us."

TESTING

Crawley finds 1,000 sites of concern

Crawley Council has identified approximately 1,000 sites of possible concern within its boundaries during phase one of its investigation regime under Part IIA, according to a report to the council executive.

Group manager for pollution and public health Karl Bock told *CLB*: "We haven't found any sites of immediate concern, phase one was really a case of going through all the sites that required assessment under government criteria, but that covers everything from old filled-in ditches and ponds that

could have had contaminated material dumped in them through to old industrial units. We haven't found much we need to worry about so far."

Bock said phase one of the council's inspection plans was almost complete, and environmental health staff will now work to develop an initial list of sites for further investigation.

"Moving onto stage two we'll put the database into some kind of priority order, then after Christmas site inspections will begin, which I expect will take

a couple of years," he said.

The sites in question are only "theoretically potentially" contaminated, Bock said, pointing out that the area did not have a history of widespread heavy industry as is the case in the Midlands.

While Crawley only has one full-time contaminated land officer to carry out the work, Bock is confident his team has sufficient resources to carry out the inspections - if no definitive evidence of a serious contamination issue is forthcoming.

REMEDICATION

Health village project stalled

Work has begun to clean up a former railway lands site in Oswestry, which Advantage West Midlands hopes will become a £30 million health village for the town. However, the project is stalled due to a campaign by some residents to designate the site a common.

Contractor Colemans & Company is removing contaminated material and dangerous debris on the surface of the site in the interest of public safety. It is expected that the clean-up operation will last around a month.

The RDA has owned the five acre site since 2003 and in June last year received outline planning consent from Oswestry Borough Council to develop a health village on the land, in partnership with Shropshire Primary Care Trust. The scheme proposes a GP surgery, a minor surgeries service, a dental surgery, physiotherapy, chiropody and speech and language therapy services, a health promotions unit, advanced primary care service, and a pharmacy. A third

of the site would be designated as amenity space linking the town centre with Shelf Bank.

Local MP Owen Paterson has appealed to residents in favour of the health village proposals to write to him to pledging their support. A public inquiry rejected the village green proposal in January - but progress on the healthcare complex is being delayed a second time by new legislation designed to protect common land.

Council leader David Lloyd said: "The health village project will transform the lives of everyone living in and around Oswestry and we are determined to see it built. We have been working hard to keep the project moving because we know how important it is to the people of Oswestry. This is our last chance to make this scheme happen.

"It is ridiculous to think that a landmark scheme such as this, which will have such a positive impact on local health provision, could be jeopardised a second time by a small

section of our community who would rather see it lie derelict and useless."

Advantage West Midlands' Mark Pearce said: "It is important that we get this site cleaned up and remediated to take the health village vision closer to reality."

In a letter to councillors Lloyd wrote: "The health project has become one of the first of a growing number of schemes trapped in an 'open-space minefield'. Although involving a classic brownfield site, new legislation means that regeneration projects such as ours could face years of uncertainty and delay. Section 15 of the Commons Act 2006, which received Royal Assent in July, gives citizens up to five years in which to object to building on any land they wish to register as common. To qualify, the land must have been in public use for 20 years. Although the Act is in place, the fact that no registrations can be made before April next year means yet further uncertainty and delay."

RESEARCH

Drought damage to microbial populations

The ability of micro-organisms to degrade herbicides in contaminated soils is drastically curtailed by drought and record summer heat, researchers at the National Research Center for Environment and Health (GSF) in Germany.

The scientists are engaged in a long term project to evaluate the ability of soils to degrade the herbicide isoproturon, use of which has been restricted in the UK since 1995 because of its potential to contaminate water supplies. The GSF's Dr Reiner Schroll explained: "Since 1997 we have been observing four outdoor soils, as part of a project concerned with how isoproturon behaves in different soils as a model substance for pesticides. Until summer 2003 one of these soils degraded isoproturon particularly efficiently - the micro-organisms living in the

soil mineralised up to 60% of the isoproturon applied within approximately two months. But after the drought in summer 2003, the degradation capacity of this soil dropped dramatically. In particular, there was only very little degradation in the top few centimetres."

The researchers found that the drought and unusual heat had profoundly changed the composition of the microbial communities in the soil. Not only had the number of micro-organisms fallen, but the composition of species had also changed, with the population of the bacteria responsible for degrading the isoproturon so badly damaged that it had become practically extinct in the topsoil.

Crucially, the soil has still not completely recovered - investigations in April of this year showed a degradation

capacity of only 15% of the isoproturon applied. Schroll said: "Our results show how important long-term experiments are. It was only when we compared the degradation capacity over several years that we noticed the changes."

Ploughing could act as a countermeasure to the problem, as the lower soil layers are not affected as badly by the drought. "And for very badly damaged soils the deliberate introduction of suitable micro-organisms might also be a possibility," Schroll said. However, both methods are labour-intensive and expensive. "But if the weather fluctuations continue to intensify, science and agriculture will have to respond with appropriate countermeasures. Unfortunately climate change is a fact, and we have to face it," Schroll said.

IN BRIEF

Diffuse pollution

The European Commission has published online the first consolidated European inventory of pollution from small, scattered sources. The inventory of EU-wide data on diffuse pollution brings together for the first time information currently held in a range of different inventories.

The inventory of diffuse pollution is a step towards the development of a future European Pollutant Release and Transfer Register (European PRTR). The inventory confirms that emissions to air and water from diffuse sources account for a substantial share of overall pollution, in some cases exceeding releases from big industrial installations.

Environment commissioner Stavros Dimas said: "This first inventory of pollution from small or non-industrial sources will contribute to protecting people's health and the environment. With this inventory we will now have a complete picture of the sources and total amounts of pollutants. This in turn will enable us to develop better targeted and thus more effective policies for fighting pollution."

● www.eper.ec.europa.eu.

Brownfield forum

CIRIA has launched a brownfield forum to "address a lack of confidence in brownfield redevelopment in the construction industry".

The forum will "seek to challenge industry scepticism by providing solutions for contaminated land practitioners involved in the legal, financial, planning and construction sectors, by identifying ways to improve profitability for brownfield projects and by seeking to promote the benefits of brownfield redevelopment".

Members will receive free invitations to events, access to a dedicated members' area on the CIRIA website, an advice service and discounted rates to attend contaminated land events.

● www.ciria.org

IN BRIEF

Dormice move in

Surrey Wildlife Trust says that a survey in late September of the area around Chilworth where gunpowder works were once located has found dormice and the Trust will install special nest boxes to care for them.

Wildlife specialist Chris Matcham said: "Set in the valley of the River Tillingbourne, Chilworth not only houses the archaeological remains of the various gunpowder works down the ages but, due to its undisturbed state, it now supports several important rare species."

Equipment in demand

Equipment supplier Quantitech says it has received increased interest in its InfraCal portable TOG/TPH analyser following revised advice from the Environment Agency, which emphasises the value of onsite testing.

The guidance states: "The use of in-situ testing to complement MCERTS laboratory analysis can significantly improve the quality of site investigation and can reduce the cost of both site investigation and remediation."

Quantitech's Chris Tyrrell said the InfraCal is able to provide accurate measurement of petroleum hydrocarbons at a relatively low cost. "As a result, measurements can be obtained quickly in the field without having to wait for laboratory analysis."

● Call 01908 227722.

Gasworks plan

A gaswork site in Lostock Hall is set to be transformed into a new housing, office and business village.

National Grid, which owns the Lostock Hall Gas Works, is to apply to South Ribble Council to build 200 homes, shops, offices and business units.

The site has been vacant since the gasworks closed in the 1970s. The land is contaminated and National Grid is working to clear the site of debris and ensure it is safe to build on.

REDEVELOPMENT

Development threat to wildlife

Plans to remediate and redevelop the 910ha Kennet Valley Park site near Reading are being opposed by the Royal Society for the Protection of Birds due to the presence of an important population of nightingales.

The area between the Kennet and Avon Canal and the M4 is a degraded landscape as a result of intensive mineral excavations over a number of years. Some quarries have been landfilled, leading to potential contamination issues.

Plans for 7,500 homes, a doctors surgery, library, five primary schools and a secondary school, have been submitted by Prudential Property Investments Managers to Reading Borough Council. However, a number of objections have been made,

including one from the Environment Agency recommending the plans are rejected on contaminated land, flood risk, conservation and water quality grounds.

RSPB officer Colin Wilkinson told *CLB*: "In September we objected to

the planning application as, in the RSPB's opinion, the developer has not demonstrated these proposals will lead to a net benefit for wildlife, as they allege. We believe that the impacts on an important population of nightingales are likely to be very severe."



REDEVELOPMENT

Cleaned munitions site wildlife treasury

A formerly top secret munitions site in North Wales where scientific researchers worked on the world's first atomic bomb has been handed over to a local wildlife trust by Defra.

The Valley munitions site at Rhydymwyn, near Mold, was once a key part of the Allied war effort and left off maps in an effort to preserve its secrecy. Since 2003 and following substantial remediation, it has been open to the public on a limited basis as a nature reserve run by the North East Wales Wildlife Trust.

At a ceremony at the site the trust was formally given long-term responsibility for the ecology of the site, which is home to a rich variety of wildlife, including grass snakes, rare owls and the common lizard.

Peter Green, head of Defra's estates division said: "North East Wales Wildlife has made a contribution to the transformation of this site from a derelict munitions factory to a haven for wildlife, so it seems entirely appropriate that their invaluable input should be recognised."

RESEARCH

Groundwater timebomb

Nitrates and phosphorous from agricultural chemicals and fertilisers are contaminating rivers and groundwater in the UK - and will continue to do so for the next 70-80 years, even if tight restrictions are put in place immediately, according to scientists from the Natural Environment Research Council's LOCAR programme.

The programme investigated how water enters, is stored within, and is discharged from rivers in three groundwater-dominated catchments. Researchers also investigated how fine sediments and chemicals, including fertiliser residues, move and their effects on habitats within the catchments.

The scientists found that as water moves through the soil, it becomes contaminated with agricultural chemicals. Some of the polluted water finds a rapid route to rivers through cracks in the ground.

However, around 70% of the water soaks slowly through permeable layers of soil and rock, taking years to reach the water table, but still carrying its

cocktail of nutrients.

Professor Howard Wheatley said: "As the use of agricultural chemicals has increased, the amount of chemicals in the chalk has built up - creating a timebomb of pollution just waiting to find its way into our drinking water."

The researchers have fed their findings into a model that predicts when this pollution will reach the rivers, helping catchment managers to draw up a timetable for taking action.

An essential requirement of the LOCAR programme was the establishment of high quality field research facilities in three contrasting permeable lowland catchments - the Frome/Piddle in Dorset, the Pang/Lambourn in Berkshire and the Tern in Shropshire, through a £5 million programme of equipment installation and maintenance.

The funding was provided from a £2 million Joint Infrastructure Fund grant to a consortium of universities and institutes and from the £7.75 million allocated by NERC to the programme.

REDEVELOPMENT

Spodden valley stalls again

The ongoing saga of the Spodden Valley redevelopment near Rochdale continues with plans currently on hold following a report to Rochdale Council by Atkins Global that found considerable amounts of asbestos and some hydrocarbon contamination.

Contaminated land officer Mark Brown told *CLB*: "An outline planning application was submitted for the redevelopment of this site in December 2004, and it was decided that it should be independently reviewed and Atkins were subsequently

employed to do so. Atkins was not asked to carry out any sampling or detailed risk assessments - it was a peer review of the relevant bits of the planning application. As such, their final reports contain no new information about the actual presence or absence of asbestos in any part of the site - they do, however, identify many potential sources of contamination (in much more detail than the applicant) and discuss weaknesses and inadequacies in the assessments presented so far to support the application."

The developers have stated that they are committed to delivering a safe solution for the whole site, but the council said the application they submitted provided very little detail of what was proposed.

Rochdale is drafting a formal reply to the applicant to outline how it wants the application to be taken forward. Brown said: "The applicant will need to submit substantially more information than they done to demonstrate that they can undertake the necessary works safely and deliver a safe and permanent solution for the site."

POLICY

CL:AIRE/SAGTA workshop policy update

CL:AIRE and SAGTA have held a successful workshop titled Building Confidence in Remediation. Attendees heard updates on contaminated land policy and remediation strategies from Defra's Sue Ellis and the Environment Agency's Brian Bone, along with a number of presentations from industry figures.

Ellis quoted up-to-date Agency figures suggesting up to 300,000ha of land in the UK may be contaminated, although "only a small proportion presents an immediate risk", she said. The importance of soil guideline values in planning intervention and remediation of contamination sites was reiterated, and Ellis said: "We promised a discussion paper on our emerging conclusions regarding the SGV review before the summer break, and it should be available fairly soon, we hope early in October." She also confirmed that changes to CLEA will form part of the package [see page seven].

Ellis also highlighted the importance of the Environmental Permitting Programme (EPP) consultation, a Better Regulation initiative designed to reduce costs by cutting red tape. Defra anticipates savings in the region of £90 million over ten years and Ellis said: "The programme starts with waste licensing and

PPC and there will be no change to standards - so don't listen to the green lobby on this one."

The issue of different contaminated land standards for planning and Part IIA decisions was also touched on, with Ellis confirming that government is not considering publishing two sets of figures.

SAGTA chairman Mark Jones gave an industry view on proposals for a contaminated land accreditation scheme. He said: "Accreditation of contractors to ensure appropriate quality and experience needs thinking through. If a scheme is launched, it mustn't limit the use of novel techniques, but we do need a process for building confidence in technologies."

Bill Baker spoke of the challenges facing local authority staff, describing contaminated land officers as the "forgotten foot soldiers" of the sector. "CLOs are under-resourced, under-valued and misunderstood," he said. "And developers and consultants consider us an unavoidable hindrance. Management of Part IIA ends up being done in our spare time because the drive to keep the planning process moving always takes precedence. But a lot of improper and inadequate risk assessment goes on and the

standard of technical reports supporting remediation plans is pretty poor, which is frustrating."

Gordon Lethbridge of Shell Global Solutions made a plea for projects to be put forward for use by CL:AIRE as case studies. "Well documented case studies would mean we could have higher confidence either of success or that a technology is unsuitable," he said. "But technical demonstration projects are starting to tail off. The more projects we get under difficult circumstances the better, so when commissioning projects please think whether they're suitable for CL:AIRE, and share your findings with the rest of the contaminated land community."

Finally, Paul Hardisty of WorleyParsons Komex posed the question: "Why is CLR11 and other guidance not being used?" He said local authorities in Kent were not accepting planning applications unless they fitted in with CLR11, because the local Agency office was insisting on this as standard.

Sheena Engineer, the Environment Agency's land contamination policy manager, said: "We would support an approach to get local authorities to insist on or encourage the use of the guidance as baseline in planning applications."

IN BRIEF

Brent investigates

Brent Council is analysing soil samples from local allotments as part of its contaminated land inspection regime. The council said it was beginning with allotments as risk to public health would be greatest if contamination was discovered.

The council refused to divulge the location of the sites under investigation on the grounds that doing so could cause unnecessary damage to property values in the London borough.

The council estimates that there may be 360 hectares of land previously used for industrial purposes within its boundaries that has been identified as potentially contaminated.

More than 190 allotment holders have been contacted, with sampling to be carried out at seven sites. The programme has begun after five years of work to identify suspect sites.

Assistant director of policy and regulation Michael Read said: "We are carrying out this soil testing because we have a legal duty to, but we think there is unlikely to be a health risk from chemicals in the soil at these sites.

"People have been eating the produce grown at these allotments for years and there have been no reports of anyone being ill because of it."

Rotherham plans

Plans for the redevelopment of the former Croda bitumen factory at Kilnhurst have been submitted to Rotherham Council by the Woodford Group.

The developer plans to build 345 homes on the 30 acre site, following extensive remediation. Swinton ward councillor John Doyle described the site as one of the most heavily polluted in the country.

A report to the council in May said the remediation of the site was unlikely to go ahead without private sector involvement. Woodford Group said the remediation would take a "considerable" amount of time.

Waiting for workable SGVs

CLB provides analysis of the likely changes to come out of the review into soil guideline values, and the next generation CLEA risk assessment software

The review currently being undertaken by Defra into soil guideline values is intended to establish more appropriate figures for establishing risk under Part IIA, after the few SGVs that were published were found in many cases to be unworkable. Research is also being carried out into how toxicological data in interpreted and how exposure levels are established, in order to publish an up-to-date version of the CLEA software model.

The problems faced by government in establishing risk and unacceptable contaminant levels are well documented - in many cases understanding of contaminants' impact on human health is incomplete, and SGVs need to be workable - as was demonstrated by the case of benzo(a)pyrene, where the government faced accusations of setting guidance values so low that practically the whole UK would be classed as contaminated.

Ingestion rates

Critical to the problem is the issue of ingestion rates, which in the past have been singled out for criticism as being too strict, based as they were on a small child ingesting a rather considerable amount of contaminated soil over a rather considerable amount of time.

However, the Environment Agency is ready to reduce the rates following scientific review, and while the virtual child could still be considered a little obsessive about eating dirt, it is important to remember that children below the age of five are not only the most vulnerable, but are also most inclined to put just about anything in their mouths.

While setting ingestion rates is an imperfect science for obvious reasons, the Agency has accepted that they are too low, and this in itself will bring SGVs up, to at least a certain extent. CLB believes ingestion rates could drop by as much as half to around 100 milligrams per day.

The Agency has also looked at the amount of time people spend in their gardens, in allotments, and so on. However, this also presents challenges in getting accurate data, and what information is available will continue to be used to develop a worst case scenario. Further research may take place, but as changing this particular parameter has limited impact on the values themselves, it is not considered a priority, representing a lot of work for results that make little difference

to the final numbers.

A lot of concern has been expressed in the past about the way CLEA models how contaminants migrate into vegetable crops, and the estimates on how much allotment and garden grown produce is consumed. Work is being carried out to establish more appropriate levels.

Volatile contaminants present another weakness in CLEA as it stands, with the model sometimes missing risk completely, and others over estimating, leaving confused practitioners with the worst of both worlds. This problem will also be addressed when the reviewed and updated software becomes available.

Deterministic modelling

The final overall change is the move towards a completely deterministic model. While the current CLEA is already about

“Defra is striving to get the SGV document published as soon as possible”

95% deterministic, anyone expecting a probabilistic model will be disappointed.

However, deterministic risk analysis has been refined in recent years, and the feeling in the Agency is that it is the better way forward. One this has been completed, parameters can be more carefully focused, a move that should also bring SGVs up. Sources suggest for arsenic this could represent a change from 20 to 30mg/kg, and half as much again for organics.

Within the SGV review, conclusions are emerging, and a draft document on the task force's conclusions is imminent, or so we are told. While the numbers will change, the impact of the review will be different for the two classes of contaminants, those with threshold effects and those normally classed as carcinogens.

With threshold effect contaminants, the debate has been just how precautionary an approach is necessary. Some in the field have been lobbying for intervention when health impacts are beginning to be measured, but Health Protection Agency and Agency toxicological experts have stated that health effects can occur below

generally accepted thresholds, and that standard international best practice calls for a conservative approach.

So while some local authorities may feel they're being forced to act on levels of contamination that are not causing health impacts, Defra has decided to continue to apply the precautionary principle, suggesting a conventional total daily intake figure will be used as a benchmark.

For carcinogens, it is much more difficult to establish either acceptable or unacceptable intakes, but with the current standards based on negligible amounts, there is a real case for higher levels, as they are currently so conservative changes would mean a minimal increase in risk.

The task force's emerging conclusions, which were presented to Defra in July, stated that the published SGVs are all conservative, and that intervention levels could safely be increased. It appears likely that values for metals will change by 1.5 to two times, and organics by up to ten.

Anticipation mounts

The final question is when the results of the review will finally be made public, with practitioners and local authorities' impatience continuing to grow. Defra's resource problems in the aftermath of the farm payments fiasco have been well documented, and with the Soil Thematic Strategy back on the European agenda, the department will have needed to ensure its conclusions fit in with the proposals before going ahead. Efforts are also being made to gain Agency, HPA and devolved administration agreement on the new SGV approach before publication.

However, CLB is assured that Defra is striving to get the document published as soon as possible, and that this will now happen in "the smallest possible number of weeks" rather than months.

Whether an updated CLEA model appears any time soon is difficult to judge, although CLB believes most of the work has been completed. While it has been suggested that the Environment Agency could make its conclusions available so that the many consultancies and local authorities running their own models or customised versions of CLEA could make changes now in order to ensure decisions made in the mean time will be compliant with the forthcoming changes, this seems unlikely. Unfortunately, as with SGVs, the contaminated land sector is probably going to have to wait.

The soil detectives

Environmental forensics is an emerging discipline that will become a key weapon in determining liability for land contamination. *CLB* investigates



Local authority contaminated land officers are familiar with the difficulties inherent in determining responsibility - and therefore liability - for land contamination under the current regime. The recent case of contaminated gardens in Seaton Carew, Hartlepool provides the perfect example.

Last year, Hartlepool Council engineering manager Alan Coulson expressed his sympathy for residents forced to wait while the council attempted to assign liability to one of three possible polluters: "The remediation timescale could be four or five years if the process of assigning liability goes to court," he said. "Residents are saying that they cannot put their lives on hold while the process plays out."

Similar problems come up all over the country, creating huge amounts of stress on residents, stalling redevelopment projects and driving investor reluctance to take risks on brownfield sites. And with the Environmental Liability Directive, which sets out to "establish a framework of environmental liability based on the polluter pays principle, to prevent and remedy environmental damage", it is likely that yet more land contamination-related cases will reach the court as regulators battle to assign blame for pollution incidents in order to force remediation or gain recompense for remediation already carried out in order to protect human health.

Major research project

This is where Professor Robert M Kalin, Royal Academy of Engineering Keller research chair, and his team at Queens University Belfast come in. Kalin is involved in a major research project - funded by the Engineering and Physical Sciences Research Council - to promote the field of "environmental forensics", a discipline which will make it easier to prove responsibility in contaminated land cases to the satisfaction of the courts.

Environmental forensics was defined by Battelle's Al Uhlerof, who described it as "an emerging field which addresses the specific questions of ownership and responsibility of environmental contamination through a detailed study of the nature of the contamination, its movement within the study area, and its linkages to potential sources".

In simple terms, environmental forensics incorporates existing site investigation techniques, such as environmental impact assessments, sample analysis and hydrogeology into an approach that can be presented effectively in a legal context.

Kalin says: "Environmental forensics aims to offer an authoritative, effective and efficient way of proving or disproving liability for pollution. It could reduce the scope for argument, minimise legal hold-ups, cut the length of court cases and so speed up brownfield development."

Neil Amner, partner at law firm Biggart Baillie, says the directive will present legal challenges: "There are going to be huge issues in terms of diffuse pollution, which is not covered unless it's from an identifiable source. It's potentially going to be a field day for consultants and lawyers to opine about who's responsible for what, where, when and how much."

A more complete understanding

The researchers have been working in the area since the 1990s, but Kalin says: "The advent of the directive has focused our attention on moving from the scientific realm into the legal realm. In the past we've looked at who caused the contamination and where it came from in order to meet remediation needs, but that was within the current regulatory framework. The directive instigates the polluter pays principle, so the assignment of liability is moving away from a risk based approach into a more formal legal framework.

"We're working towards a more complete understanding of contamination in order to provide legal evidence. Where before we would have looked at what contamination might be present on a site, we know have to know exactly where it came from, so this research is about providing a weight of evidence that will stand up legally."

The team is re-evaluating site investigation techniques, and looking at uncertainties present in the overall evaluation of environmental risk. Kalin says: "So we're looking at the collection of samples, through testing and interpretation, in order to increase our ability to clearly assign responsibility.

"We're also developing novel analytical methods based on position-specific stable isotope analysis, so we're also at the cutting edge of developing new technology to help understand the source, fate and transport of contaminants in the environment."

Environmental forensics is likely to be a key weapon for regulators seeking to assign liability under the directive, but also for local authorities as Part IIA inspections move forward. As more sites are determined as contaminated - and more companies find themselves in court as authorities seek to force remedial action - the need to demonstrate responsibility to a sufficiently high standard of proof is going to become an increasing problem, and environmental forensics may well prove to be the answer.

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Success in Scotland

Congratulations to the Environmental Industries Commission for a very successful event held at Glasgow's Science Centre, right next to the Clyde and surrounded by brownfield land.

Director Merlin Hyman sadly told *CLB* that he'd been forced to turn people away from the over-booked event, which saw presentations from luminaries such as Judith Lowe and a drinks reception hosted by SEPA chairman Sir Ken Collins.

Jumping the fence

Attendees also heard from new SEPA waste policy unit manager Kenny Boag, who has moved to the regulator from local government, where he will spearhead a better regulation drive. We wish him well in his new position, and would like to take this opportunity to warn him of the risks inherent in going drinking with certain members of SEPA's PR team, who will, of course, remain nameless.

Concerns over strategy

The resurrected proposals for a Soil

Thematic Strategy are causing some concern in the contaminated land sector, with fears expressed that unless the European Commission goes with the flexible approach it promises, the work done putting the UK's regulatory system in place since 1990 could be undermined.

Consultant Paul Nathanail tells *CLB*: "The biggest question mark is over to what extent there is sufficient flexibility for pre-existing local legislation to be seen as meeting the strategy's requirements.

"If Part IIA is seen to fulfil the requirements of the strategy then fine, but if that's not the case and the new rules require something even subtly different, then it could undo all the good work we've done in the UK over the past six years."

However, it's not all bad news. As Nathanail points out: "The proposals look so much like Part IIA that it's flattering to see Europe doing something so similar."

Natural England launch

Last week saw the official launch of Natural England, the new government

agency created by merging English Nature, the Countryside Agency and the Rural Development Service.

Four major campaigns have been announced, one of which focuses on sustainable land management.

Chief executive Helen Phillips said: "Natural England is about four things - having a healthy natural environment, people's enjoyment of the natural environment, sustainable use of our natural resources and a secure environmental future. We will be about the urban as well as rural environment and as much about tomorrow as we are about today."

And finally...

This, our third issue, cements *CLB*'s position as a successful publication catering to the information needs of the contaminated land industry in these exciting and challenging times.

Thanks to you all for your part in our success, including those I've personally strong armed into subscribing. And please do feel free to contact me at any time, with stories, comments, suggestions, compliments or criticism.

CONTAMINATED LAND EVENTS 2006

October 19

RISK ASSESSMENT FOR GROUND GASES

Organised by CIRIA and to be held in Glasgow. Visit www.ciria.org.

October 26-27

LAND QUALITY TRAINING WORKSHOP 2006: EFFECTIVE MANAGEMENT OF LAND CONTAMINATION

Two-day workshop organised by the NSCA and to be held at Abington. Contact 01273 878770.

October 31

CLEA UK TRAINING COURSE

Held by Atkins and to be held at Warrington. Visit www.atkinsglobal.com/skills/environmentalservices/training.

November 8

BUILDING FOR 2012 AND BEYOND: CIRIA ANNUAL CONTAMINATED LAND CONFERENCE

To be held at the Millennium Hotel Mayfair, Grosvenor Square, London. Visit www.ciria.org.

November 9

EMAQ+ CONTAMINATED LAND SEMINAR: THE CHARACTERISATION OF POTENTIALLY CONTAMINATED SITES

To be held at Chadwick Court, London. Call 0870 190 6551.

November 22-23

THAMES GATEWAY FORUM

To be held in London. Visit www.thamesgatewayforum.com.

December 6

ENHANCED BIOREMEDIATION

A remediation training course, organised by IPM-Net, formally FirstFaraday, and to be held in London. Visit www.ipm-ktn.com.

January

CONTAMINATED LAND: OPPORTUNITIES AND CHALLENGES IN NORTHERN IRELAND

The Department of Environment for Northern Ireland and CL:AIRE will co-host a one day conference to raise awareness of the issues, regulatory framework and risk assessment approaches in dealing with land affected by contaminated land. Call 020 7258 5321.